



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,704	05/10/2007	Fumihiko Kimura	062916	4387

38834 7590 01/07/2008  
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP  
1250 CONNECTICUT AVENUE, NW  
SUITE 700  
WASHINGTON, DC 20036

EXAMINER
----------

ORTIZ RODRIGUEZ, CARLOS R

ART UNIT	PAPER NUMBER
----------	--------------

2125

MAIL DATE	DELIVERY MODE
-----------	---------------

01/07/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/590,704

Applicant(s)

KIMURA ET AL.

Examiner

Carlos Ortiz-Rodriguez

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/25/06, 11/27/06, 2/28/07</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Examiner's Note***

1. It should be noted that the claims of the instant application contains many objections and language that does not comply with 35 U.S.C. 112, second paragraph. For example, claims 4, 12, 18, 24 and 28 each contain more than one sentence and it is not possible to determine which one of the sentences is the Applicant trying to utilize in order to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. Additionally, there are other dependent claims that depend on said claims 4, 12, 18, 24 and 28 and cannot be adequately analyzed due to said situation. Applicant is required to correct those deficiencies. The claims have been given the broadest reasonable interpretation in view of the specifications, but a better interpretation will be possible when Applicant corrects the deficiencies pointed out in this Office Action. Furthermore the cited references and the references submitted by Applicant could be applied in future actions. It should further be noted that the "terms in parenthesis that appear throughout the claims are not given patentable weight and are considered as labels.

### ***Claim Objections***

2. Claims 4, 12, 18, 24 and 28 objected to because of the following informalities: The term "[Numeral 126]" and "[Numeral 127]" should be deleted. Additionally, these claims should be written in one sentence form. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 rejected under 35 U.S.C. 112, second paragraph, as being indefinite (ambiguous). It is ambiguous whether the term "an industrial product" (Line 2) is referring to the "industrial products" previously cited or if it is a different "industrial product".

5. Claim 1 rejected under 35 U.S.C. 112, second paragraph, as being indefinite (unclear). It is unclear if the pitch angle, yaw angle and tangential direction is referring to a description of the curve or if it is referring to a description/characteristic of the industrial product. It is also unclear if the terms "curve length" and "curve length variable" is referring to the 3D curve or to a new curve.

6. Claims 4, 12, 18, 24 and 28 rejected under 35 U.S.C. 112, second paragraph, as being indefinite (unclear). It is unclear if the term "a curve" is referring to the three-dimensional clothoid curve.

7. Claims 14, 15 23 and 25-27 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what subject matter applicant regards as the invention when stating "expressing a trajectory of a machine tool or a contour shape of a workpiece". The relationship between the machine tool and the contour shape is not clear.

***Claim Rejections - 35 USC § 101***

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 9, 14, 21 and 26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These claims are directed towards software per-se.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-2, 4-28 are rejected under 35 U.S.C. 102 (b) as being anticipated by Guiqing et al., “3D Discrete Clothoid Splines”, 2001 IEEE (referred to as Guiqing et al.).

Regarding claim 1-2 and 4-28, Guiqing et al. discloses designing industrial products, characterized in that a shape of an industrial product is designed by using a three-dimensional curve (referred to as a three-dimensional clothoid curve) in which each of a pitch angle and a yaw angle in a tangential direction is given by a quadratic expression of a curve length or a curve length variable and characterized in that the

industrial product is a machine including a mechanism in which a mechanical element having a mass moves and a trajectory of motion of the mechanical element is designed by using the three-dimensional curve (referred to as the three-dimensional clothoid curve) (see at least Section 1, Section 3.2 and Section 4).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guiqing et al., "3D Discrete Clothoid Splines", 2001 IEEE in view of Drennen et al. U.S. Publication No. 2002/0189385.

Regarding claims 3, Guiqing et al. disclose all the limitations of the base claims.

But Guiqing et al. fails to clearly specify the screw device.

However, Drennen disclose that the machine is a screw device including a mechanism in which a ball as the mechanical element moves, the screw device comprises a screw shaft having an outer surface on which a spiral rolling element rolling groove is formed, a nut having an inner surface on which a load rolling element rolling groove is formed so as to be opposed to the rolling element rolling groove and a regression path is formed to connect a one end and the other end of the load rolling

element rolling groove, and a plurality of rolling elements disposed between the rolling element rolling groove of the screw shaft and the load rolling element rolling groove of the nut and disposed in the regression path (see for example the Abstract and Paragraphs 0002, 0007 and 0033).

Therefore at time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above invention disclosed by Guiqing et al. and combining it with the invention disclosed by Drennen et al. The

One of ordinary skill in the art would have been motivated to do this modification because in this art it is common to utilize 3D curves for modeling devices and to obtain optimum performance from the device as suggested by Guiqing et al.

#### *Citation of Pertinent Prior Art*

Applicant is respectfully requested to fully consider all the references, in entirety, that appear on the attached list (Form PTO-892). These references disclose subject matter similar to that of applicant's disclosure and may be relied on in a future response to Applicant's remarks or amendments.

#### *Conclusion*

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is 571-272-3766.

Application/Control Number:  
10/590,704  
Art Unit: 2125

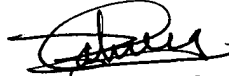
Page 7

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Carlos Ortiz-Rodriguez  
Patent Examiner  
Art Unit 2125

December 28, 2007

  
ZOILA CABRERA  
PRIMARY EXAMINER  
TECHNOLOGY CENTER 2100  
1/4/07